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CLAIM AMENDMENTS

1 to 40. CANCELLED

41. (Previously presented) A method of increasing the proliferative capacity of a mammalian cell, comprising introducing into the cell in vitro a recombinant polynucleotide that encodes a telomerase reverse transcriptase protein comprising SEQ. ID NO:2, or fragment of SEQ. ID NO:2 that contains the telomerase T motif:

Trp-
$$X_{12}$$
-Phe-Phe-Tyr-X-Thr-Glu- X_{10-11} -Arg- X_3 -Trp- X_7 -Ile (SEQ. ID NO:119)

wherein X_n is a number "n" of unspecified amino acids each chosen independently;

wherein the encoded protein has telomerase catalytic activity when complexed with a telomerase RNA, and

whereby introducing the recombinant polynucleotide into the cell increases the proliferative capacity of the cell.

- 42. (Previously presented) The method of claim 41, wherein the cell is a human cell.
- 43. (Previously presented) The method of claim 41, further comprising selecting a cell that expresses increased telomerase catalytic activity as a result of introducing the polynucleotide.
- 44. (Previously presented) The method of claim 43, wherein the cell is a human cell.
- 45. (Previously presented) The method of claim 41, wherein the polynucleotide encodes a full-length telomerase reverse transcriptase.
- 48. (Previously presented) The method of claim 45, wherein the cell is a human cell.
- 47. (Previously presented) The method of claim 45, further comprising selecting a cell that expresses increased telomerase catalytic activity as a result of introducing the polynucleotide.
- (Previously presented) The method of claim 41, wherein the polynucleotide comprises the telomerase reverse transcriptase encoding sequence of SEQ. ID NO:1.
- 49. (Previously presented) The method of claim 48 wherein the cell is a human cell.

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- 50. (Previously presented) The method of claim 48 further comprising selecting a cell that expresses increased telomerase catalytic activity as a result of introducing the polynucleotide.
- 51. (Previously presented) The method of claim 50 wherein the cell is a human cell.
- 52. (Previously presented) The method of claim 41, wherein the recombinant polynucleotide is an expression vector.
- 53. (Previously presented) The method of claim 52 wherein the expression vector is an SV40 virus expression vector, an EBV expression vector, a herpesvirus expression vector, or a vaccinia virus expression vector.
- 54. (Previously presented) The method of claim 52 wherein the expression vector is a retrovirus expression vector.
- 55. (Previously presented) The method of claim 52 wherein the expression vector is an adenovirus expression vector.
- 56. (Previously presented) The method of claim 52 further comprising selecting a cell that expresses increased telomerase catalytic activity as a result of introducing the polynucleotide.
- 57. (Previously presented) The method of claim 52 wherein the cell is a human cell.

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58. (Currently amended) A method of increasing the proliferative capacity of a mammalian cell, comprising contacting the cell with an adenovirus vector comprising that expresses a DNA sequence that encodes encoding a telomerase reverse transcriptase protein containing the telomerase T motif:

 $Trp-X_{12}$ -Phe-Phe-Tyr-X-Thr-Glu- X_{10-11} -Arg- X_3 -Trp- X_7 -IIe (SEQ. ID NO:119)

wherein X_n is a number "n" of unspecified amino acids each chosen independently;

wherein the DNA sequence hybridizes to a sequence complementary to SEQ. ID NO:1 at 5° C to 25° C below T_{m} in aqueous solution at 1 M NaCl;

wherein T_m is the melting temperature of double-stranded DNA having the sequence of SEQ, ID NO:1 under the same reaction conditions; and

whereby introducing the recombinant polynucleotide into the cell increases the proliferative capacity of the cell.

- 59. (Previously presented) The method of claim 58, wherein the cell is a human cell.
- 60. (Previously presented) The method of claim 58, wherein the DNA sequence encodes a full-length telomerase reverse transcriptase.
- 61. (Previously presented) The method of claim 58, wherein the DNA sequence comprises the telomerase reverse transcriptase encoding sequence of SEQ. ID NO:1.
- 62. (Previously presented) The method of claim 58, wherein the DNA sequence encodes SEQ. ID NO:2 or a fragment of SEQ. ID NO:2 having telomerase catalytic activity when complexed with a telomerase RNA.

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- 65. (Previously presented) The method of claim 62, wherein the cell is an epithelial cell.
- 66. (Previously presented) The method of claim 62, wherein the cell is a keratinocyte.
- 67. (Previously presented) The method of claim 62, wherein the cell is a hair matrix or hair shaft cell.
- 68. (Previously presented) The method of claim 62, wherein the cell is a hepatocyte.
- 69. (Previously presented) The method of claim 62, wherein the cell is an endothelial cell.

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- 70. (Previously presented) The method of claim 62, wherein the cell is a cell of the ciliary epithelium of the eye.
- 71. (Previously presented) The method of claim 62, wherein the cell is a cementoblast, odontoblast, osteoblast, or chondrocyte.
- 72. (Previously presented) The method of claim 62, wherein the cell is a heart cell.
- 73. (Previously presented) The method of claim 62, wherein the cell is a lymphocyte.
- 74. (Previously presented) The method of claim 41, wherein the cell is an epithelial cell.
- 75. (Previously presented) The method of claim 41, wherein the cell is a keratinocyte.
- 76. (Previously presented) The method of claim 41, wherein the cell is a hair matrix or hair shaft cell.
- 77. (Previously presented) The method of claim 41, wherein the cell is a hepatocyte.
- 78. (Previously presented) The method of claim 41, wherein the cell is an endothelial cell.
- 79. (Previously presented) The method of claim 41, wherein the cell is a cell of the ciliary epithelium of the eye.
- 80. (Previously presented) The method of claim 41, wherein the cell is a cementoblast, odontoblast, osteoblast, or chondrocyte.
- 81. (Previously presented) The method of claim 41, wherein the cell is a heart cell.
- 82. (Previously presented) The method of claim 41, wherein the cell is a lymphocyte.
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